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Remarks

This response is intended as a full and complete response to the Office Action dated July 31, 2003. In the Office Action, the Examiner indicates that claims 1-15 are pending, of which claims 3 and 6 are withdrawn from consideration and claims 1, 2, 4, 5 and 7-15 are rejected. By this Response, all currently rejected claims continue unamended and comments in response to the Examiner's rejections follow.

REJECTION OF CLAIMS UNDER 35 U.S.C. §103

1. The Examiner has rejected claims 1-2, 4-5, 7, 10, and 12-15 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,811,344 issued May 10, 1994 to Bohn et al. (hereinafter Bohn) in view of U.S. Patent No. 6,587,476, issued July 1, 2003 to Lewin et al. (hereinafter Lewin). Specifically, the Examiner indicates that Bohn allegedly discloses a data communications system in accordance with the subject invention; however, Bohn does not include an Ethernet adaptor circuit in a head end, nor does Bohn teach an Ethernet interface for providing upstream data. Additionally, the Examiner offers that Ethernet is a popular network interface and can be found in most computers for interconnecting with other computers. Lewin allegedly emphasizes this fact and in his Figure 1 shows the use of 10 BaseT Ethernet interfaces for receiving data from subscribers. Accordingly, the Examiner concludes that one of ordinary skill in the art would have been motivated to combine the teachings of Lewin with the data communications system of Bohn because Ethernet interfaces are popularly found and Ethernet is capable of providing high bandwidth duplex data communication for subscribers and allows the interconnection to other networks.

In response, the rejection is respectfully traversed. It has been well established that the prior art must suggest the desirability of the claimed invention. The level of skill in the art cannot be relied upon to provide the

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suggestion to combine references. *Al-Site Corp. v VSI Int'l Inc.* 174 F.3d 1308, 50 USPQ2d 1161 (Fed Cir. 1999). The Examiner has offered that one of ordinary skill in the art would have been motivated to combine Bohn with Lewin because Ethernet interfaces are popular and are found (or otherwise equipped) in most home and office computers. This line of reasoning is inadequate to support a conclusion of obviousness because the Examiner is relying on the level of ordinary skill in the art to suggest the combination of the references rather than the references themselves. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vacek*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The first criteria has clearly not been met as mere popularity of a given feature (in this case the use of Ethernet for interconnecting computers) cannot be used as suggestion or motivation to combine the teachings. Just because something is widely accepted or suitable to the majority does not mean it is acceptable or applicable to every situation. In this particular case, mere existence of Ethernet in Lewin does not provide sufficient motivation to combine the technology with Bohn to arrive at the subject invention.

Additionally, it is respectfully submitted that the second criteria has also not been met. Specifically, there is no reasonable expectation of success indicated in a combination of Ethernet into the system of Bohn. Bohn's system is designed by strategically combining aspects of WDM, TDM and subcarrier multiplexing (per Abstract) to achieve its objectives. Bohn's solution already purports to have non-interfering transmission of broadband services on a single

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fiber as a result of its design; no further solutions are contemplated, considered necessary or offered. Accordingly, the Examiner's impermissible hindsight cannot be used to introduce other aspects (Ethernet protocols) as sufficiently acceptable or advisable to integrate into Bohn's system. Specifically and as presented in Col. 2, lines 42-51, the existing PON is upgraded by the combining aspects of WDM, TDM and subcarrier multiplexing as follows:

The current, low-speed fiber network is upgradeable to handle the broadband services in accordance with the principles of the present invention by using coarse wavelength-division multiplexing (WDM) at each end of the network together with time-division multiplexing (TDM) for outbound service ("downstream") and sub-carrier multiplexing (SCM) for subscriber inbound service ("upstream"). The upgraded network is a Passive Optical Network (PON), and is wavelength-independent which permits further upgrading without difficulty.

As such, it is respectfully submitted that the *prima facie* case of obviousness to claim 1 has not been established by the Examiner; hence, withdrawal of the rejection is requested.

Furthermore, claims 2, 4, 5, 7, 10, and 12-15 depend, either directly or indirectly from claim 1 and recite additional features thereof. As such, and for at least the same reasons discussed above with respect to claim 1, the Applicant submits that these dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection be withdrawn.

2. The Examiner has rejected claims 1, 2, 4, 5, and 13-14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,550,663, issued August 27, 1996 to Zirngibl (hereinafter Zirngibl) in view of U.S. Patent No. 6,088,368, issued July 11, 2000 to Rubinstein et al. (hereinafter Rubinstein). Specifically, the Examiner offers that Zirngibl discloses a data communication system in accordance with the subject invention but does not teach or include an Ethernet interface in the network unit to receive upstream data. Additionally, the Examiner

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offers that Rubinstain teaches in Figure 3 an optical network unit with an 10BaseS interface. The Examiner then offers that one of ordinary skill in the art would have been motivated to combine Rubinstain with the data communication system of Zirngibl because Ethernet is a commonly used data interface at terminal equipment.

In response, the rejection is respectfully traversed. Specifically, Zirngibl was first used by the Examiner earlier in the prosecution history (in the August 12, 2002 Office Action). Applicant fully responded to the rejections raised under anticipation and obviousness based on Zirngibl at that time and Applicant will discuss some of those same aspects here to clarify the teachings of Zirngibl and consequently its inapplicability as a suitable reference under the statute.

The test under 35 U.S.C. § 103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Thus, it is impermissible to focus either on the "gist" or "core" of the invention, Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416, 420 (Fed. Cir. 1986) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added).

The references must be taken in their entireties, including those portions which argue against obviousness. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 U.S.P.Q. 416, 420 Fed. Cir. 1986]. It is impermissible within the framework of the 35 U.S.C. § 103 to pick and choose from a reference only so much of it as will support a conclusion of obviousness to the exclusion of other parts necessary to a full appreciation of what the reference fairly suggests to one skilled in the art. Id. at 419.

Specifically, Zirngibl is concerned with providing a downstream transmission of information signals in an optical network via wavelength division

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multiplexing (WDM) multi-frequency techniques. Additionally, and as per the Summary of the Invention section of Zirngibl at column 2, lines 28-38, "For upstream transmission, the plurality of broadband sources provides a plurality of discrete optical wavelength carriers upon which, respectively, a plurality of information signals is impressed to create a plurality of optical information signals. The passive optical demultiplexer spectrally slices and multiplexes the plurality of upstream optical information signals. The wavelength selective coupler routes the multiplexed upstream signals from the remote node to a receiver in the central office. The receiver segregates the multiplexed signals into distinct information signals for further processing." Additionally, and at column 2, lines 45-50, "The upstream optical information signals are demultiplexed at the central office by using either TDM or sub-carrier multiplexing (SCM), as is well known in the art...". Therefore, Zirngibl establishes information transfer protocols using either time division multiplex or the sub-carrier techniques and is in no way considering or implementing Ethernet as a potential alternate, additional or replacement technology for transmitting optical information signals. Therefore, any additional references that present Ethernet-based information transfer protocols would be considered redundant in Zirngibl and not necessary or desirable for such a system. That is, at column 1, lines 57-57 Zirngibl addresses a need for a more economical and efficient wavelength division multiplexing network architecture. A tunable laser may emit only one optical wavelength at a time, a well-known characteristic of time division multiplexing and, therefore, inefficiently utilizes the time dimension of the transmission path. By using a wavelength division multiplexing multi-frequency optical source, Zirngibl takes advantage of the multi-frequency source and newer modulation techniques to solve their problem of inefficient WDM multiplexing architecture. Once again, alternate methods of information transfer or protocols (such as Ethernet) are not addressed or considered in Zirngibl. It is only the Examiner's (impermissible) hindsight that supports the rejection. As such, Zirngibl in

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combination with any additional reference which introduces Ethernet does not obviate any of the currently pending claims.

Additionally and with respect to Rubinstain, the subject secondary reference does nothing to further suggest that the combination will result in the desired goals. In fact, Rubinstain teaches away from a head-end equipped with an Ethernet based circuit. One can plainly see from inspection of at least figures 1-4 and the descriptions found at Col 9, line 7 – Col 10, line 66 that a 10BaseS modem must use Frequency Division Multiplexing (FDM) at the Customer Premises to deliver Ethernet frame data. This is completely in opposite to the configuration of the subject invention; any attempted combination of Zirngibl with Rubinstain does not result in the invention of claim 1. Therefore, Applicant submits that claim 1 fully satisfy the requirements of 35 U.S.C. §103 and is patentable thereunder.

Furthermore, claims 2, 4, 5, and 13-15 depend, either directly or indirectly from claim 1 and recite additional features thereof. As such, and for at least the same reasons discussed above with respect to claim 1, the Applicant submits that these dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection be withdrawn.

3. The Examiner has rejected claims 7, 9, and 11-12 under 35 U.S.C. §103(a) as being unpatentable over Zirngibl and Rubinstain in further view of U.S. Patent No. 5,822,102, issued October 13, 1998 to Bodeep et al. (hereinafter Bodeep). Specifically, the Examiner offers that Zirngibl and Rubinstain have been discussed above and Bodeep allegedly teaches additional features for the claims rejected under this specific section.

In response, the rejection is respectfully traversed. Applicant has hereinabove discussed the combination of Zirngibl and Rubinstain and shown it to have been inadequate to sufficiently support a finding of obviousness. Therefore, any additional attempts to further show obviousness of additional

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features of the invention by adding additional reference(s) to the combination of Zirngibl and Rubinstein similarly fails to meet the requirements of the obviousness statute. That is, the various combinations offered by the Examiner still do not result in a device that has the claimed elements that can transmit first and second signals from first and second network units in a substantially simultaneous manner without collisions between said signals. As such, and for at least the same reasons discussed above, the Applicant submits that these dependent claims also fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that the rejection be withdrawn.

4. The Examiner has rejected claim 8 under 35 U.S.C. §103(a) as being unpatentable over Bohn and Lewin and in further view of U.S. Patent No. 6,137,607, issued October 24, 2000 to Feldman et al. (hereinafter Feldman). Specifically, the Examiner offers that Bohn and Lewin have been discussed above with regard to claims 1-2, 4-5, 7, 10, and 12-15 and that the difference between the modified communication system of Bohn and Lewin and the claimed invention is that Bohn and Lewin do not include a bias control circuit. Further, the Examiner offers that Feldman describes the operation of a bias control that shuts off a laser (transmitter) in the absence of user data. Therefore, the Examiner concludes that one of ordinary skill in the art would have been motivated to combine the teachings of Feldman with the modified data communication system of Bohn and Lewin.

In response, the rejection is respectfully traversed. As discussed earlier under Section 1 of Applicants' arguments to these rejections, the Examiner has failed to establish the *prima facie* case of obviousness with respect to claim 1 with the combination of Bohn and Lewin. Any additional references used to further establish obviousness of a dependent claim is similarly deficient for at least the same reasons discussed above with respect to claim 1. The Applicant submits that such dependent claims also fully satisfy the requirements of 35

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U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection to claim 8 be withdrawn.

5. The Examiner has rejected claim 8 under 35 U.S.C. §103 as being unpatentable over Zirngibl and Rubinstain and Bodeep in further view of Feldman. Specifically, the Examiner offers that the combination of Zirngibl, Rubinstain and Bodeep have been discussed above and that the difference between the modified data communication system of those combined references of the claimed invention is that the network units of the modified communication system do not include a bias control circuit. The Examiner further offers that Feldman teaches the use of a bias control circuit as presented above. Therefore, the Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the bias control circuit of Feldman in the modified system.

In response, the rejection is respectfully traversed. Applicant has hereinabove discussed the combination of Zirngibl and Rubinstain and shown it to have been inadequate to sufficiently support a finding of obviousness. Therefore, any additional attempts to further show obviousness of additional features of the invention by adding additional reference(s) to the combination of Zirngibl and Rubinstain similarly fails to meet the requirements of the obviousness statute. That is, the various combinations offered by the Examiner still do not result in a device that has the claimed elements that can transmit first and second signals from first and second network units in a substantially simultaneous manner without collisions between said signals. As such, and for at least the same reasons discussed above, the Applicant submits that these dependent claims also fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that the rejection to claim 8 be withdrawn.

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6. The Examiner has rejected claim 9 under 35 U.S.C. §103(a) as being unpatentable over Bohn and Lewin in further view of U.S. Patent No. 6,542,722, issued April 1, 2003 to Sorrells et al. (hereinafter Sorrells). Specifically, the Examiner indicates that the combination of Bohn and Lewin has been discussed above and the differences between that modified communication system and the claimed invention is that the modulation method is the modulation method for upstream data. Additionally, the Examiner that Sorrells teaches techniques for modulation; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the modulation method (such as QPSK) as taught by Sorrells in the combined communication system of Bohn and Lewin.

In response, the rejection is respectfully traversed. As discussed earlier under Section 1 of the Applicants' arguments to these rejections, the Examiner has failed to establish the *prima facie* case of obviousness with respect to claim 1 with the combination of Bohn and Lewin. Any additional references used to further establish obviousness of a dependent claim is similarly deficient for at least the same reasons discussed above with respect to claim 1. The Applicant submits that such dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection to claim 9 be withdrawn.

7. The Examiner has rejected claim 11 under 35 U.S.C. §103(a) as being unpatentable over Bohn and Lewin in further view of Zirngibl. Specifically, the Examiner has indicated that Bohn and Lewin present a modified data communication system without discussion of a specific wavelength for the upstream data channel. Additionally, the Examiner offers that Zirngibl teaches the use of a 1.3 μm wavelength for upstream data. Therefore, it would have been obvious to one of ordinary skill in the art to make use of 1.3 μm wavelength upstream data as to taught by Zirngibl in the modified system of Bohn and Lewin.

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In response, the rejection is respectfully traversed. As discussed earlier under Section 1 of the Applicants' arguments to these rejections, the Examiner has failed to establish the *prima facie* case of obviousness with respect to claim 1 with the combination of Bohn and Lewin. Any additional references used to further establish obviousness of a dependent claim is similarly deficient for at least the same reasons discussed above with respect to claim 1. The Applicant submits that such dependent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that rejection to claim 11 be withdrawn.

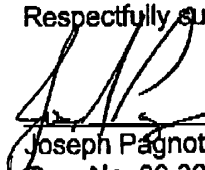
CONCLUSION

Thus, the Applicant submits that claims 1, 2, 4, 5, and 15 are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Eamon J. Wa at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

Oct 28, 2003


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